Completion Criteria Guideline

This guideline shows you how to set completion criteria for a project or parts of a project—specifically those goals needed to call an element of a project "complete." Completion criteria are communication tools and important aspects of quality project management. Your team needs to agree on when a particular activity or phase is completed. Setting explicit completion criteria ensures everyone understands the true scope of a project or a particular activity, and that no deliverable or the overall project is released before its time. Completion criteria also help ensure all features are included, all required issues are corrected, the right people are involved in reviews, etc.

To establish necessary criteria for your project and to guarantee quality and completeness of every key deliverable, use the following guidelines:

1. Review guidelines for examples of different completion criteria and for various types of criteria that you can define.

2. Set completion criteria for your overall project, such as what deliverables must be complete and what "completed" means for those deliverables.

3. Set completion criteria for activities or interim deliverables during the project.

4. Consider both qualitative and quantitative criteria for both areas as described further in the guideline.

5. Get the sponsor's and team's agreement and buy-in to the completion criteria for a project.

6. Communicate project completion criteria by documenting them in your Project Charter, Scope, or Vision document, or in separate documents as well.

Completion Criteria for Projects and Deliverables

Example of How Completion Criteria Provide Clarification

Consider a project is producing a new hardware/software system. Which of the following definitions describes the completion of a detailed design of a subsystem or software module?

- When drawings or design documents exist and the engineer says it's "ready to be prototyped" or "ready to be coded."

- When drawings or design documents are written, reviewed, updated, officially under change control, and published to everyone needing them.

The first definition of completion may not result in a high quality design because this definition may contain mistakes and leave too much to chance. The second definition is a much more qualitative form of completion criteria. Following This longer list of completion criteria ensures the right review steps are taken, problems are identified and fixed, the right people are involved in the review.

The term "Completion Criteria" is often meant to convey quantitative criteria as well. For instance, a very typical completion criteria for a testing activity specifies:

- No category 1 defects (which can make a system crash).

- No category 2 defects (often "must-have" customer requirements) unless explicitly signed off by Manager X, Executive Y, etc.

- Fewer than n category 3 defects (usually non-critical feature aspects).

- Fewer than n category 4 defects (minor user interface or cosmetic issues, etc.).

The purpose of previous completion criteria is to set very objective measures that ensure a system is not allowed out of testing prematurely. If the testing in question is "integration" testing that must be completed before a QA group has a system for independent testing, then we want to make sure we don't hand them an unstable system that causes test cases to fail and eventually requires the QA group to deliver the system back to the software group to be fixed!

Another example of completion criteria would be the following: We're conducting QA testing and the next step is to take the system/software to a beta customer (internally for an IT system end-user, or externally for a product that wil be sold to customers). Typically, taking a beta product to customers implies they are using it in their normal production environment or close to it. Consequently, we need to ship a product that works well enough for customer use. The list above is very typical for completion criteria that states "QA is finished / OK to ship to beta."

Note: *In this case, completion criteria might include items such as "Customer service has reviewed and approved the draft user manual that will be sent to beta customer."*

How Completion Criteria Are Used

Completion criteria such as those previously illustrated are employed at different levels within a project. For example:

- Completion of a project task, interim deliverable, or major phase or activity.

- Completion of customer acceptance of the main project deliverable.

- Completion of the entire project.

Completion of a project task, interim deliverable, or major project phase or activity

In the above detailed design example, a team might have completion criteria for when the design review is finished and might include:

- All issues raised in the review are addressed, the resolution documented, and all drawings/documents are updated.

- The customer service representative on the team believes the design is installable and supportable.

- The cost of the hardware design is verified by the purchasing department and within the estimated product cost.

In this example, completion criteria may be documented in a design review checklist for the team. When larger work components are involved, such as an entire test effort, completion criteria such as the earlier defect metrics can be used.

Completion of customer acceptance of a product, service, or system

This usage is similar to the testing example above in that it generally involves criteria which prove a system works well enough to give to a customer. Specifically, acceptance criteria that focuses on proving a system performs the required customer functions and the customer runs or witnesses the testing. Thus, the acceptance criteria may contain a list of use cases to be run. The criteria will also reveal any elements (such as readiness of user manuals) the customer must approve before accepting the system,.

Completion of an entire project

The completion criteria for an entire project are generally broader. They include meeting release standards for the product, service, or system but also further define when the entire project is finished.

A project delivering a new electronic system typically includes a *First Customer Ship* milestone that involves its own release criteria and is similar to the *Customer Acceptance Test* completion criteria. Very often there will be another, later milestone called *General Availability*. The product would not be released to this level (available to

all customers) until some kind of criteria have been met, for example, "Our first 5 limited-release customers have used this system for 3 months and we have fixed all major issues they've discovered. No category 1, 2, or 3 bugs remain."

For products manufactured in volume—including electronics and semiconductors—the project might run until a certain manufacturing volume with a specified yield is achieved. In this instance, completion criteria such as, "We can manufacture 50,000 units per month with a 90% yield and a 40% gross margin."

It's common for project completion to include items related to documentation. For example, "All manufacturing drawings must be under Revision A control," or, "All software design documentation must be under change control and reviewed with those who will be maintaining the system."

Some companies include customer-focused requirements in their "project complete" criteria. For instance, processes may call for formal customer feedback, analyzed data, correcting major issues, and additional comments for the marketing/product management/analyst staff to use in future product releases. Some companies also include knowledge management or quality-focused parameters in these criteria. For example, process may require a formal *Lessons Learned Meeting* by the team with results presented to other project managers.

Who Should Be Involved in Setting Completion Criteria

Completion criteria should be drafted, reviewed, agreed upon by the team or appropriate subset of team members, and kept visible. They are communication tools that ensure everyone agrees upon the meaning of "Competed", and plans and works accordingly.

When to Create Completion Criteria

Completion criteria are usually set as part of planning activities and may be updated as the project progresses:

- Completion criteria for a project and each major phase ensure that all needed work is factored into the schedule and budget.

Completion criteria for particular project tasks are set when that task is planned. For instance, completion criteria for customer acceptance testing are set when the plan for that testing is documented.

Administrative Information

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